

VIRGINIA WILDLIFE

SEPTEMBER, 1955



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Bald Eagle Nest

U. S. Fish & Wildlife Service Photo
in Virginia's Tidewater

Vanishing American Scene

VIRGINIA WILDLIFE

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A Monthly Magazine Dedicated to the Conservation, Restoration, and Wise Use of Virginia's Wildlife and Related Natural Resources, and to the Betterment of Hunting and Fishing in Virginia

COMMONWEALTH OF VIRGINIA



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Cover

The mourning dove is one bird that nests in every state in the United States. In Virginia and other southern states it is classed as a game bird!

National Audubon Society Photo by Cruickshank

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INTERDEPENDENCE OF NATURAL RESOURCES

THERE are three kinds of natural resources—vegetable, animal and mineral. It is readily apparent that animal life depends upon vegetable and that both animal and vegetable depend upon inorganic minerals in the soil. Can you think of a horse that has won fame on the race track, under the saddle in the show ring or has borne the gladiator into battle that was not produced on a lime soil?

All of the famous livestock, cows, horses, sheep and hogs that have taken the blue ribbons at the great fairs of the world were for the most part produced on lime soils and on soils containing high percentages of mineral elements necessary to build bone and give strength.

Dr. Starker Leopold, in his study of the wild turkey in the Missouri Ozarks, found that 81 per cent of all the wild turkeys in that area thrived on one particular type of soil — this, notwithstanding the vegetative growth on the five distinct types of soil in the Ozarks, was the same.

If you want to go gunning next season for the exotic ring-necked pheasant, you will find them in their normal abundance on glacial and volcanic types of soil. As a rule, you don't find this bird in shootable quantities on any other soil types. That's the reason we do not and cannot have pheasants worthwhile in Virginia and other States south of the Potomac and Ohio rivers. Come to think of it, man himself is largely the product of certain soil types. Read the history of the human race and become convinced. Millions of Asiatics are dying of malnutrition annually because their eroded soils cannot produce foods containing mineral nutrients to keep them alive. We call it "starving to death." Well, that's exactly what it is. The body does not get sufficient mineral and vegetable nutrients to produce bone and muscle — and fat.

In our own country, there are eroded areas where man has failed because he has been unable to draw from the earth about him those sustaining mineral and vegetable elements to make and keep him strong.

According to the Soil Conservation Service, (the latest figures I have at hand), there are in the United States a total of 282,218,263 severely eroded acres. Of this number, 98,522,217 acres are in the thirteen southern States. That means, aside from human factors, we

have nearly one hundred million acres in the south on which game birds and animals cannot survive in a healthy condition.

The Virginia Commission of Game and Inland Fisheries and similar agencies in the other States are spending in the aggregate large sums of money each year in wildlife habitat improvement — more food and better food for the wild denizens of the fields and woods.

Is vegetable life dependent on animal life? One of the earliest lessons one learns of the early settlement of this country is that the white man found the Indian planting a fish under each hill of corn to make good growth and big ears. Many of our commercial fertilizers contain blood and other animal matter from the great slaughter houses of the country. No, it is not used as a filler but the nitrogen and other elements, including minerals, help to produce bigger and better crops.

Is animal life dependent on minerals for its livelihood? Ask your doctor how many mineral elements are found in the human body or most any other form of animal life — domestic or wild. You will be interested to know that there is a large number of minerals in all forms of animals in the fields, woods and waters of Virginia.

If you should feed an animal rations free of mineral matter, it would probably die sooner than if not fed at all. Animal blood is surcharged with sodium chloride and other salts of sodium. The red blood cells are rich in sodium and potassium. The cells of the body are laden with phosphorous, while the bones are composed largely of lime and phosphorous. Deprive the blood of lime (calcium) and it will not clot. Iron in the blood is important. Hydrochloric acid is found in the salts and pepsin acts only in their presence. Thus, it is seen that animal life could not long survive without the presence of minerals.¹

In a well rounded conservation program employed by those of us engaged in wildlife work, we must not lose sight of the interdependence of all of our natural resources, both organic and inorganic, and that to have an abundant supply of one resource, wildlife for example, we must have an abundant supply of all.

— L. T. Quinn

¹ Professor Henry, Wisconsin University



With proper management Virginia's deer population should same day reach a safe 200,000 with a yearly harvestable surplus of 30,000 to 35,000.

A REPORT ON The Glades Deer*

By STUART P. DAVEY

Game Biologist

Five o'clock in the morning of last November 15th (1954) was an anxious time for several hundred deer hunters and several Game Commission personnel who had come to the Glades section of Wise and Scott counties. For this was the hour in which 100 permits were to be issued to hunters at each of two stations for the purpose of taking "any deer," rather than a buck only. One station was located near Blackmore, in Scott County, at the Glenn Carter Store, and the other was at the new wildlife cabin in the mountains above Tacoma, which is in Wise County. With the coming of daylight and for the first time in many a year, legal antlerless deer were about to be taken in southwest Virginia.

What brought all this about? Why wasn't everyone permitted to shoot any deer? These and many other questions were asked during the two days the permits were issued, even though news releases had been issued before the hunt. Now, after going over all the data collected, the full report can be given.

Deer had been released in this area of the state as long ago as 1928. Through the efforts of many local people and especially of Mr. Joe Rose, the Commission's game manager, the deer slowly but surely gained in numbers. The best concentration was, as might have been expected, in the original Glades Area, about 5000 acres that were set aside as a refuge for a period of years and then came directly under the eyes of the game manager. Buck seasons had been opened in this part of the state—but everything was not going the way it had been hoped.

In 1954, the Game Commission had only the following facts on which to judge the Glades deer herd:

- a. The herd had spread into a range of only about 210 square miles—and seemed to be stopped there.
- b. The reported adult buck kill from this area was averaging about 1.1 per square mile, this being considered good—and near the maximum desired for the range.
- c. This reported buck kill had increased slowly—about 15 percent annually.
- d. There were signs of overbrowsing in parts of the area.

* A contribution of Virginia's Pittman-Robertson Project No. W-40-R

- e. Hunting pressures (based on Wise County damage stamp sales) were relatively high; averaging 20-25 per square mile as against 10 or less in some of the more popular areas.
- f. Free running dogs and poor public attitudes were taking an annual toll of deer.
- g. Antlers of all adult bucks reported were averaging about 36 percent spikes. This was double that found in the Shenandoah Valley counties and was equaled only by those bucks coming from the Dismal Swamp.

This high percentage of spikes in the reported kill can mean one of three things: that all the bucks have rather poor antlers and that some of the older deer have spikes; that the bucks one and a half years old which make up the majority of the kill are nearly all spikes; or it could be that the yearlings are only about 50 percent spikes but that the high hunting pressures make the herd in the fall about 80 percent yearlings.

To complete knowledge of the herd and also to give relief in winter browsing in part of the area, it was decided to remove approximately 100 antlerless deer from an area of about 80 square miles which surrounded the Glades. Of especial importance was the need to find whether the doe deer were producing fawn the way they should be—and whether the failure of the herd to grow faster was the result of this possible lowered productivity or whether it was a combination of factors.

THE HUNT

At the two stations, 139 deer were closely handled by technicians, on November 15-16. Of this number, 42 were taken in Wise County, 97 in Scott. The 139 were composed of the following: 59 adult bucks, 22 buck fawns, 38 adult does and 18 doe fawns. There were also two doe of unrecorded age. All of the deer taken on permit were handled but, of course, all of the adult bucks taken in the area were not since they could be taken to other stations.



Secret to deer management is proper browse conditions and proper annual harvest.

The weather was warm and pleasant on the 15th, but not so desirable the 16th since rain fell part of the day.

Hunting pressures were heavy in the Glades Area proper, but Wise County damage stamp sales, were off from 1953 about 25 percent. This would approximate the hunters in the two counties at 4000 instead of 5000. As noted above, this still gives an average hunter density of twice many more popular counties.

The area was not thrown open to everyone for several reasons. First of all the total kill desired was limited to 100 antlerless. Besides this, it was to be the only area where "any deer" could be taken for several hundred miles and an influx of hunters was not desirable.

On the first day 200 permits were issued. By evening 63 had returned with a deer—6 adult bucks and 57 antlerless. On the 16th, 100 permits were handed out and 29 deer were bagged. Of this number 24 were true antlerless while two adult bucks with very short spikes were also considered as having been taken as a doe or fawn.

The above success of the hunters varied widely as to the station. On each day the success at the one was 16 percent while at the other it was 40 percent. Since the same area was often used by the permit holders, no explanation for this is offered. It won't be stated here which county did the better. The high concentration of deer in the Glades Area proper helped to give a high success figure. It should be remembered, too, that in these hunts the permit holder definitely wants a deer and would thus bias any effort to extend this success, to say, the 4000 hunters in the total area.

By plotting each deer as it was brought in on a map marked off in sections (square miles), it was found that although about 80 sections were open to the permittees, antlerless deer were taken in only 21. Obviously, the majority hunted the Glades proper—and that's where the deer were concentrated.

For the 21 square miles from which the 83 deer classified as antlerless were taken, the average was 3.95 per square mile. This varied from the minimum of one to a maximum of 11. Counting the adult bucks, of which the total number was not checked, as high as nine were taken per unit area with the high total being 20 from one section (for all deer). In the two day period, 45 deer were checked that had been taken within about a miles radius of the game manager's cabin.

Of interest was the fact that no deer was checked that had been shot more than a mile from a road or jeep trail. Since, however, probably no more than 10 percent of the area is that far from a road, this merely points out the accessibility of the area and not necessarily the habits of the local hunters.

PHYSICAL MEASUREMENTS

The deer were weighed as they came in and also underwent measurements of right hind foot, antler points, antler beam diameter and spike length. The deer were aged according to the wear or replacement of

their teeth. All the weights were converted to hog dressed (all organs removed).

The physical development of the animals varied greatly but averaged out nearly the same in weight per age class as other deer in the state of similar blood lines—the Glades deer stock being largely from the south and thus similar to those found and examined in Big Levels, western Bath County, York County, Prince George County and Dismal Swamp. Many of the re-stocked deer in other counties came from northern states and often grow much larger. The deer were located as to origin on the area as they were checked but no correlation could be found between areas or watersheds and the physical development.

The average hog-dressed weights in pounds of deer of equal sex and age class are given below:

AGE CLASS

	$\frac{1}{2}$	$1\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$5\frac{1}{2}$
Buck	45.0	77.2	100.8	(113.0)		X
Doe	42.4	67.3	78.8	81.6	84.7	89.3

The heaviest buck seen was one which dressed out at 166 pounds. The largest doe at about 107. The lightest yearlings of both sexes weighed 51. The smallest fawns dressed out at 25 pounds.

The antlers of the adult bucks were nothing to attract trophy hunters to the area. About 80 percent of the yearling bucks had spikes which averaged 3.8 inches in length. Since yearlings make up nearly 60 percent of the total kill, chances for a good rack are slim. The yearlings should have better antlers—nutritional deficiencies would be first suspected as the reason. A summary of some of the other physical measurements are given below:

AGE CLASS

	$\frac{1}{2}$	$2\frac{1}{2}$	$3\frac{1}{2}$	$4\frac{1}{2}$
Mean Total Points	*2.36	5.4	7.6	6.0 (1 deer)
Mean Beam Diam. #	14.2mm.	19.2mm.	25.6mm.	25.0mm.
Percent Spikes	81.5%	7.1%		
Mean Spike Length	3.8in.			
*Points minimum of one inch long				
#Measured one inch above burr				

The ages of the adult buck deer reflect the high hunting pressures. It is believed that annual mortality of this group is at least 60 percent and this gives rise to a young herd of bucks. The oldest one of 59 handled was $4\frac{1}{2}$ years and only three on the $3\frac{1}{2}$ age class were found in this sample. Perhaps another indication of the close cropping of bucks on the Glades is that only one of these older deer came from the permit area.

PRODUCTIVITY MEASUREMENTS

The most important factor in the success or failure of a deer herd is the doe deer. Her productivity and her longevity are the keys to growth in numbers. The most important contribution of this segment of the population is, of course, in the addition of fawns to the herd and being able to raise these fawns successfully.

The age classes of the doe deer reflect this rearing success over the years. The ages of the Glades doe deer indicated this area's success to be near 65 fawn per 100 doe in the fall. The kill ratio from the hunt gave a



Virginia deer hunters look to the "big game" season as an annual event.

figure of a little over 100 fawn per 100 doe, this reflecting the vulnerability of fawns to the gun. This was found to be true especially early in the season in other studies.

A study of the doe reproductive tracts showed that ovulation had taken place in none of the fawns and in only four of 29 adults. This is about 14 percent and compares favorably with the 13 percent found in 31 does of western Bath and Big Levels on November 20th last fall. It is, though, much less than the ovulation found for this date in the areas of the northern white-tails (Shenandoah and western Augusta County) where 51 percent occurrence was found on the 20th.

The ovarian scars indicative of previous pregnancy showed in this sample that none of the fawns, two of five yearlings and 16 of 17 adults had conceived the fall before. Applying the average fertility to those doe in these three age class ratios that would be found in a herd whose rearing success is 65 fawn per 100 doe each fall gives this overall picture for the Glades deer herd. For each 100 doe deer of all ages in the fall, about 60 will succeed in breeding and with average productivity of 1.33 will have a total fawn potential of about 80. This compares rather poorly with the 70 percent usually found breeding with an average of 1.50-1.60 and a total of 105-112. (The top to date in the state is an indicated 80 percent breeding, averaging 1.65 for 132 total.) Only western Bath County has data showing as low an indicated productivity. Last fall's data from this area showed 67 percent of the does breeding but with an average of only 1.14 for a potential of 76. The number of this potential that actually are born and live to the age of 5-6 months appears to be about 70-80 percent. This would mean that in the Glades herd, the fall ratio should be about as found by the age classes—around 60 fawn per 100 doe.

The occurrence of lactation was recorded as the doe were examined at one station. There were none of 8

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The Annual Wildlife Essay Contest

By W. C. KELLNER

Assistant Chief, Education Division



Preliminary screening of essays is done by staff workers of the Commission.

Commission Photos by Kesteloo

THE annual Wildlife Essay Contest is a school conservation project sponsored each year by the Virginia Commission of Game and Inland Fisheries and the Virginia Division of the Izaak Walton League of America. Held annually since 1947, it is proving to be more popular in Virginia schools every year.

The object of the contest is to help make conservation-minded citizens out of Virginia's children. Because the strength of any nation is based upon its natural resources, it is important that all young people understand resource values and the role they play in maintaining America's high standard of living and free way of life.

Though science and technical know-how have progressed rapidly in the past several decades, science will never be a substitute for natural resources. We'll always have to depend on soil, water, plants and animals for a wholesome way of life.

Today thousands of Virginia youngsters have been stimulated to think about the importance of wildlife and

related resources as a result of their participation in this contest. This alone points out the value of the contest.

In the past, some interested teachers have taught conservation in the classrooms by integrating the subject with their required courses of study.

Teachers of history, social science, general science, and even arithmetic have acquainted their pupils with natural resources by working the idea of conservation through these courses. Many have seen that every subject taught in the public and private schools has a direct relationship to some conservation concept.

The contest is the natural tool of instruction for teachers. It gives an English teacher, for example, an excellent opportunity to teach wildlife conservation and, at the same time get pupils into the practice of writing and thought development. The knowledge gained in the preparation of essays will make better citizens and sportsmen out of the youngsters.

Each year an estimated 10,000 or more school children, from grades 5 through 12, prepare essays on conservation, or some special aspect of it, depending upon the title. Yearly \$1400 in prize money is awarded to the winners in the several categories. A \$100 college conservation scholarship is now awarded to the high school senior whose essay is judged best for that grade in the state. Fifty-six other cash awards, totalling \$1000, are also given. In addition to these prizes, some 210 beautifully engraved certificates of merit are awarded to students writing good papers but not in the cash categories.

There are eight grand prize winners, one from each of the grades 5-12, each receives a cash award of \$50 in ceremonies at the State Capitol in Richmond with the Governor making the presentation in the state Senate Chamber. Other winners get their cash awards in ceremonies at the schools. Second place winners in



The purpose of the essay contest is to help make conservation minded citizens out of our school youngsters.

each of the eight grades receive a \$25 prize and third place winners receive a \$15 prize. In addition to these placement prizes, there are 16 honorable mention prizes of \$10 and 16 special mention prizes of \$5 each. There is also a special school prize of \$40 awarded to the school having the best response.

A pleasant day of entertainment is planned for the grand prize winners and their parents and guests who come to Richmond each spring. An honor luncheon is held for the winners and dignitaries, and important state officials are invited as special guests.

REFERENCE MATERIALS

In the past, information packets have been mailed to all schools sending in official entry cards. As the contest has grown, this has become a staggering undertaking. Due to the expense and the shortage of printed matter, these packets will no longer be used. Information specifically on the contest for principals, teachers and pupils, including announcements, however, will continue to be sent out.

All school libraries now have materials that can be used for references in the contest. Over the years the Game Commission has sent out reprints, pamphlets, charts, booklets, including *Birdlife of Virginia*, *Freshwater Fishing and Fishlife in Virginia*, and *Game Birds, Mammals and Fish of Virginia*, that can be referred to by the pupils. Each month, too, a copy of *Virginia Wildlife* magazine goes to the library of each school in Virginia and is a good source of conservation information. Aside from these Game Commission publications, many school libraries have excellent books on conservation in general that will be of aid to the student who is preparing an essay.

HOW ESSAYS ARE JUDGED

The thousands of essays that are received at the Game Commission offices are separated as to grade at the close of the contest and all the essays are carefully screened by Commission personnel. The best ones are sent to a panel of judges for the final selection of all major prize winners. This board of judges is made up of



Highlight of the contest is the presentation of the grand prize cash awards by the Governor in the state capitol in Richmond.



Grand prize winners and guests are given a special luncheon following the exercises in the state capitol.

the president of the Virginia Division of the Izaak Walton League of America, the executive director of the Commission of Game and Inland Fisheries and the state superintendent of Public Instruction.

The judges make their selections based on such things as coverage and understanding of the subject, originality and presentation of thought, effective punctuation, neatness, grammar, etc.

Though essays may be sent in longhand, in many instances neatness and in some cases clarity is gained by having essays typed.

SUGGESTIONS FOR PRINCIPALS

The high school principals can be of great help in this conservation education project by giving it their support. They can bring the announcement and rules of the contest to the attention of the faculty at their regular meetings. In many instances a little encouragement from the principals will go a long way toward helping to establish an interest in the subject. In some schools the principal's interest and guiding hand have been the secret of the success the school has had in past contests.

SUGGESTIONS FOR TEACHERS

Many times the principal is burdened with administrative duties and so has little time to give to the contest. In such instances it is the classroom teacher that arouses the interest and encourages the participation. The teacher that shows interest and enthusiasm will have no difficulty getting 100 percent participation from her pupils.

The Game Commission now has three special services officers on the staff. One duty of these men is to help encourage conservation education in the schools. They will gladly prepare and bring to the interested school groups a program on wildlife conservation. The programs are especially appropriate in introducing the annual Wildlife Essay Contest to a class or a school assembly program. If a principal or teacher is interested in securing such a program service, contact should be

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The catalpa worm is a choice bait for late summer bream fishermen.

WHEN dog days arrive, the weather is suffocating, you can't find earthworms, your minnows die in the tepid water, and fish are not biting anything you throw at them. If you still want to catch a mess of fish, here's one solution. Don't bother to dig for bait—merely climb a tree. More precisely, find a catalpa or "Indian cigar tree" and search for the worms that are often found on this species of shade tree.

We had often heard about the merits of the catalpa caterpillar as fish bait, and after using them successfully for a number of years, in our humble opinion, this is the best panfish bait for late summer and fall that we have ever encountered. (We understand they are very effective too with river catfish.) We might quote a number of seemingly fantastic experiences with bream utilizing the catalpa larvae, but it might sound too much like the typical exaggerated fish tale. Just last summer we witnessed two young boys catching in excess of 40 large bream in about an hour's time; the same afternoon seven adult bream were caught on the same caterpillar. If you want to catch the biggest panfish in your pond just try them yourself and you'll soon be a convert to catalpa casting.

The source of the catalpa caterpillar is one of Mother Nature's most interesting tales. Its life cycle is one of those fascinating phenomena of nature that occur frequently in our midst without ever being noticed. If you've studied biology, you'll recall that a number of insects (like the butterfly) undergo during their life cycles what is called a complete metamorphosis or change. During the various stages of development the insects un-

* C. H. Shaffer is game biologist in charge of the Commission's Farm Game Program.

For Bait Fishermen

ONLY

By C. H. SHAFFER*

dergo a number of radically different alterations in their anatomy, and there is no similarity between the adult and their offspring through these interesting phases of growth. It is rather hard to conceive that the parent of the grotesque catalpa worm is actually the large beautiful moth known as the catalpa sphinx moth.

Just why this moth chooses the catalpa tree for depositing its eggs is a matter of conjecture, but it is probably associated with the fact that the catalpa tree has such large succulent leaves and is fast growing. It is rather surprising that the larvae have never been observed on any other species of tree.

The eggs are always deposited on the underside of the leaf and the larvae are first noticed when they are approximately one fourth of an inch long. At the start, the entire hatch is usually restricted to a relatively few leaves, but as the caterpillars grow and use up the available food supply, they usually separate and migrate over the entire tree.

Since the caterpillar or worm is our main point of interest here as a fishing aid we will return to it later. Let us first, however, complete the life cycle of this interesting insect. After the caterpillar has reached full growth it will then crawl into the ground or litter on the ground where it will spin a thin cocoon and enter into the pupal stage where development is further altered. After a period of hibernation the catalpa sphinx moth evolves and the cycle can start all over again.

Normally the hatches of catalpa larvae occur during July, August and September. However, they have been observed on trees up until the first frosts in October. The earliest hatch ever recorded by the writer was on

June 16th. Three different hatches over a period of three months have been noted on the same tree.

Catalpa worms are easily recognized (especially if they are on a catalpa tree), and can hardly be mistaken for anything else. The first female reaction to catalpa worms is one of repulsion, and if you're fishing with your wife and children you'll probably be forced to bait all the hooks temporarily. We'll admit that the caterpillar when first encountered is not too comely, but with each succeeding fish caught, they become less harmful looking and more beautiful. They're perfectly harmless—we've handled literally thousands of the worms and have never been bitten, stung or poisoned!

The catalpa larvae are usually black on top, yellow underneath with white and black markings interspersed over the body. The caterpillars have four pairs of suctioncup appendages on the under mid-section of the body, and another pair on the tail which holds it inverted on the leaves. Immediately in front of the suction appendages below the head and neck are three sets of legs used in motivation over the tree. The mouth is large, completely adapted for consumption of large quantities of leaf material. On the posterior end of the caterpillar is a black antenna or feeler. The skin of the larvae is rather tough, especially in the more advanced stages of development, and the "meat" is white. Some catalpa enthusiasts claim that this layer of "meat" is sweet, making it extremely desirable to fish. We wouldn't know because we have never sampled it.

From experience it appears that the worm is at its best for attracting and catching bream and silvers when it is about three quarters grown. At an earlier stage the worm is so small that the angler will be bothered by too many of the more abundant small bream. The larger worm apparently discourages the smaller fish since you seldom catch anything but the more mature bass. The larger larvae likewise have a tougher skin which enables one to catch more fish using the same worm. Some catalpa fishermen recommend turning the worm inside out on the hook, and this can be easily



A paper bag and a stiff upper lip and stiff fingers are all that is needed to collect the harmless catalpa larvae.

accomplished with a matchstick, but it has been our experience that this experience is not necessary; the fish hit them regardless. Practically every fish that you will catch will have swallowed the worm, and thus hooked itself when it strikes. We prefer to fish with catalpa worms using a fly rod, long leader, and no weight or float. The line should be cast into deeper water and as the worm gradually descends, the fish usually strike as it nears the bottom of the lake or pond.

Since the caterpillar stage is so short and the fishing season long, some progressive fishermen have instigated methods of prolonging the life of the catalpa larvae. If your good wife doesn't object too strenuously, they can be kept alive for a period of weeks by keeping them in your refrigerator. It is understood that further down South they are sometimes preserved in the deep freeze for year-around fishing pleasure. Apparently the worms are hardy and can take it; recently we kept several dozen of the larvae in a practically air-tight container for several days and they all survived.

The catalpa tree which serves as a host for the caterpillars is used mostly as a shade tree around suburban homes. Occasionally the trunks are utilized as fence posts. When a large hatch occurs, the trees will become quickly denuded unless the worms are controlled. People who are not aware of their usefulness as panfish bait will be happy and pleased if you will remove these nasty worms from their trees. It has been found, however, that as their reputation spreads, all available sources of the worms are carefully checked daily for the presence of their valuable bait and their control is automatically solved by fishermen.

Perhaps the time is not too far removed when enterprising individuals will plant catalpa plantations just for their worm production. Recently we talked to an extension forester about the culture of this fast-growing ornamental tree. He laughed and commented that years ago he received numerous inquiries as to how to control the catalpa sphinx—now people are wondering how to raise the trees in order to obtain the worms.



Shades of a catalpa pasture. Catalpa leaves on the left have been defoliated by the worms; the one on the right has not been touched.

GETTING STARTED

With your NRA Hunter Safety Course

By BILL CLEDE

IN the five short years that the NRA hunter safety program has actually been in effect, results have been realized that continually point out the benefit of training new hunters in proper gun handling afield. The adage that safety is best attained through education is repeatedly proven to be true. Statistical reports of official state programs invariably show a divided reduction in the firearms accident rate proportionate with the degree and scope of the education offered.

Every true sportsman recognizes this great need for training and more than nine thousand competent hunters have voluntarily met the requirements and passed the examination to become NRA hunter safety instructors. The procedure for becoming certified as an instructor is relatively simple. By writing to the National Rifle Association, 1600 Rhode Island Avenue N. W., Washington 6, D. C., you may request and receive a packet of information on attaining this rating. On becoming certified, you receive an official identification card stating that you are rated as an instructor in the NRA hunter safety program and are thereby authorized to conduct classes and to award certificates to deserving graduates of the course.

In an effort to institute a corps of trained instructors, many official and quasi-official groups have sponsored

instructor training clinics. Your basic knowledge of hunting and gun safety is necessary but, of even greater importance is your ability to pass that knowledge along to others. That, however, is material for a textbook in itself. Suffice it to say here that the NRA will furnish you with instructor guides and other training materials at moderate cost to help you with your program.

The problems of sponsorship, place and publicity are up to you to resolve. An individual *instructor*, beginning a *hunter safety course* on his own, is confronted with these problems as well as the club which sponsors a course. Problems are not insurmountable even for the individual but the responsibilities are negligible when divided among the members of a committee. The rifle club, sportsman's club or other civic-minded group which sponsors a *hunter safety course* should establish a *committee for safety training* consisting of at least five persons.

The chairman is, of course, responsible for the over-all operation of the entire program but the assistants serve to lessen the workload on any one individual. One committeeman should be charged with providing the place to conduct the course and he may be called the "range officer." Best results may be obtained by having separate range and classroom facilities and, wherever possible, an outdoor area where actual field problems may be presented to the students and solved by them.

Another responsibility is that of assuring that all necessary supplies and training material is available at the right place when needed by the course instructor. This supply officer should order all material so that duplications may be avoided.

The secretary should maintain records of those students who are qualified as safe hunters by keeping a record of the NRA student registration cards. These cards, available from the NRA, may be retained in your own file as a separate report form is furnished for you to notify the NRA of your activities. Other duties such as correspondence, attendance records and progress reports, keeping financial records and preparing reports naturally fall to this office.

In addition to extra instructors, the committee must have a means of informing the public of the program. The public relations officer serves many needs of promotion, but let's deal with him later.



Qualified instructors are of primary importance for a successful NRA hunter safety program.



An example of what can happen to a gun with abstraction in the barrel. Students should be given a thorough indoctrination as to proper handling of all fire arms including sporting weapons.

While the supply officer is ordering the material suggested in the NRA hunter safety instructor's guide, the range officer arranges for the location. The local high school will often have a rifle range and certainly the classrooms so contact the principal and explain the purpose of your project. New Hampshire, Vermont and Arizona have enacted legislation permitting the public school system to include hunter safety education in their regular curriculum. Your principal will probably be happy to make the needed space available. National Guard armories and other military installations have been found to be very cooperative in providing ranges. A local NRA club having a range is an excellent bet.

These classes need not be conducted indoors alone. During the cold months comfort dictates indoor activity but it is preferable to hold classes outdoors, weather permitting. A safe, though perhaps temporary, range may be established in a vacant pasture providing an adequate backstop is available. A wooded area, in a safe direction from the range, may be utilized to conduct actual field problems (without ammunition, of course). Fences, creeks, boats and simulated obstacles may confront the students while the instructor is afforded the opportunity to observe the student's reactions and correct possible errors.

Now that you have the necessary personnel, material and place all you have to do is "spread the word." It may be better not to over-publicize the first session since more people may show up than your group can properly handle. However, with a schedule of consecutive courses, you should make up a master list of all prospective students and schedule definite classes to begin on definite dates. As soon as an individual has been scheduled to attend a certain class, advise him when to appear and where the course is to be held. He will not mind waiting as much if he knows that he is registered and scheduled.

Regardless of the advance publicity given to your

activity, few persons may appear interested. Consider your own reaction to news items — are you more interested in a notice that something is going to be held or do you react more favorably to a report of some successful course actually being conducted?

When the first class graduates, take a good picture and submit an 8x10 glossy print along with a short write-up of the course to your local newspaper. Keep the report limited in length. The editor must consider the amount of space that he can devote to any one story and, even though your safety course is newsworthy, it cannot monopolize the page. Be sure to emphasize the success and benefit of your class and mention names, especially important or well-known ones.

If at all possible, the public relations officer should get to know the editor — contrary to the amateur writer's belief, he is a human just like us. Inform him of your activity and keep him posted of new developments and interesting occurrences.

An excellent method of promoting this activity is to offer to conduct a hunter safety course for a Boy Scout troop, school class, or other group (many new adult hunters may want to take the course). In this way you assure a full class without the liability of over-population. In any event, keep the news items going to the paper. Report unusual incidents or items of general interest and you will keep the inquiries coming in.

When the first course is completed the group should get together and thoroughly discuss every detail. Was anything left out? What did we need but not have? Did the class have a convenient number of students? What did we forget to do? Did the students receive the training they were lead to believe they would receive? Just as the child learns by asking questions, so do we. Question every aspect of this first course and, where needed, improve or correct anything left undone. Any problem you cannot solve, refer it to the NRA Headquarters. Their purpose is to help you.



Since most hunting accidents are caused by inexperienced young people, it is essential that all youngsters be given a thorough safety course before they are permitted to hunt or own a gun.

DIGEST OF VIRGINIA 1955-56

LICENSE FEES

City resident, to hunt in Warwick and Hampton	\$1.00
City resident, to fish	1.00
County resident, to hunt and fish	1.00
State resident, to hunt	3.50
State resident, to fish	3.00
State resident, Big Game Stamp, to hunt bear and deer	1.00
National Forest Stamp, to hunt, trap and fish	1.00
Nonresident, to hunt	15.75
Nonresident, to fish	10.00
Nonresident interstate (North Carolina and Virginia) consecutive days to fish in Kerr Reservoir	1.00
Nonresident, 3 consecutive days to fish in public impounded waters not stocked with trout	1.00
Nonresident, Big Game Stamp, to hunt bear and deer	1.50
Special Stamp, to hunt bear and deer in Bath, Bland, Botetourt, Buchanan, Craig, Grayson, Giles, Highland, Rockbridge, Smyth, Washington, Wise and Wythe	2.50
Nonresident in Smyth and Wythe	1.00
County resident to trap	5.00
City resident to trap in Warwick and Hampton	3.00
State resident, to trap	3.00
Nonresident, to trap	5.00

License is required to take, capture or kill any wild bird or wild animal except of landowners, their husbands or wives and their children, resident or nonresident, within the boundaries of their own lands.

Licenses may be obtained from the Clerks of the Circuit Courts of the counties or the Corporation Courts of the cities and other authorized agents.

IT IS UNLAWFUL:

For any person to hunt with firearms while under the influence of alcohol, brandy, rum, whiskey, gin, wine, beer, lager beer, ale, porter, stout or other liquid beverage or article containing alcohol or while under the influence of any narcotic drug or any other self-administered intoxicant or drug of whatsoever nature. Game Wardens and Sheriffs shall enforce the provisions of this act;

To hunt or kill any wild bird or wild animal, including any predatory or undesirable species, with firearms or other weapon on Sunday;

To hunt deer with dogs west of the Blue Ridge;

To hunt or attempt to kill any species of game after having obtained the day's bag limit or the season's limit during any one day of any one season;

To occupy any baited blind or other baited place for the purpose of taking or attempting to take any wild bird or wild animal or to put out bait or salt for any wild bird or wild animal for the purpose of taking or killing;

To kill or capture any wild bird or wild animal adjacent to any area where a field or forest fire is in progress;

To shoot any game bird or game animal from an automobile or other vehicle;

To hunt or track woodcock or non-migratory game birds or game animals in the snow except that bear and deer may be hunted in the snow, and landowners may kill rabbits in the snow on their lands for their own personal use, and foxes may be hunted with dogs, but not with shot in the snow;

To hunt, capture, possess, transport, ship, sell or attempt to do so, any wild bird or wild animal except as specifically provided by law or regulation; or to destroy or molest the nests, eggs, dens or young of any wild bird or wild animal at any time without a permit, except predatory or undesirable species;

To hunt with either a dog or a gun or be in possession of any firearm (except peace officers and game wardens) in the National Forest during the general closed hunting season;

To have in possession loaded firearms on any public highway unless such person is authorized to hunt on private property on both sides of such highway in counties having a population in excess of four thousand and not in excess of four thousand, five hundred;

To shoot a rifle or pistol at wild birds and wild animals on or over the public inland waters of this State or to carry a loaded rifle or pistol on a boat or other floating device on said public inland waters for the purpose of hunting wild birds and wild animals, except when said rifle or pistol is being transported for this purpose from one point to another un-loaded;

To hunt fur-bearing animals in any county in the State with firearms during the general open season for hunting game birds and game animals in the county;

To catch trees (statewide) or to smoke out raccoons from holes or hollow trees or destroy in any manner any tree which is the den of any wild animal in the County of Grayson; or to carry any axe, hatchet, tomahawk or implement used for the purpose of felling, cutting down or otherwise destroying trees in Grayson County;

To landline traps on land owned or controlled by the State or any political subdivision or any corporation or individual using in such traps any type of trap or snare which is capable of trapping two, forty-eight, or twenty-two long-eared bats, or any other bat, in the State of North Carolina County with a rifle;

To use crossbow or air pistol (air gun) or slingshot for the purpose of hunting wild birds and game animals;

Statewide, to hunt or kill deer which are in groups less than twelve (12) provided that in the Counties of FAIRFAX, CHESTERFIELD, ESSEX, HANCOCK, MELVILLE, NEW KENT, PRINCE GEORGE, SOUTHEMPTON, SUSSEX, ST. MARYS, and NORFOLK, except that part of the former Swans Island, and

Norfolk Counties located as much as 100 yards from any railroad or public highway, and then only when the rifle is used on a stand elevated not less than 15 feet above the ground), it shall be unlawful to use a rifle of any calibre for the hunting and/or killing of deer;

To hunt game in the counties of APPOMATTOX and BUCKINGHAM with a rifle larger than a twenty-two (22) calibre;

To chase foxes with dogs in APPOMATTOX County or Sunday;

To hunt in ARLINGTON County;

To have gun or rifle with dog in the daytime in the fields, woods or waters of AUGUSTA, CLARKE, FREDERICK, PAGE, SHENANDOAH and WARREN in Counties east of the Blue Ridge, EXCEPT in PATRICK, during the general closed season, except where migratory game birds, deer, bear, and fox may be hunted during other periods; and except as to rabbits and squirrels by land owners upon their own lands;

To hunt in BUCHANAN, DICKENSON and TAZEWELL Counties whilst having in your possession any axe or saw; without obtaining permission of the landowner;

In CHARLES CITY and KING GEORGE Counties to hunt with a rifle of a calibre of more than twenty-two;

To hunt deer with rifle or shotgun loaded with slugs in KING WILLIAM County;

To hunt deer with shotgun, rifle or pistol loaded with slugs in PRINCE GEORGE County;

To shoot any firearm from any boat or other floating device while hunting wild birds and wild animals on the Appomattox River between the mouth of Namozine Creek and Genito bridge or to carry any firearm on a boat or other floating device on said river for the purpose of hunting between the points mentioned, except when such firearm is being transported unloaded;

To have in possession any shotgun or rifle for the purpose of hunting wild birds or wild animals on the water areas, including shores of the sea in ACCOMACK, NORTHAMPTON and PRINCESS ANNE Counties during the closed season on migratory game birds, provided, that this shall not apply to persons holding permits granted by the Executive Director of the Commission authorizing the same, or to persons engaged as officers of the peace, while actually in the performance of their duties as such. For the purpose hereof the word "possession" shall include having a gun for the purpose of hunting wild birds or wild animals in one's boat or other conveyance while in the above mentioned areas;

To shoot any firearm at wild birds or wild animals from any boat or other floating device on the waters of the Blackwater River, Somerton Creek and Nottoway River from Monroe Bridge to the mouth thereof and Lawns Creek dividing Isle of Wight and Surry Counties beginning at Mills Bridge thence northeast six miles to the James River, or to carry any firearm on a boat or other floating device on said waters between the points aforesaid for the purpose of taking wild birds or wild animals, except when such firearm is being transported directly across the said waters unloaded for the purpose of hunting during the open season for hunting deer in that section;

To shoot any firearm at wild birds or wild animals from any boat or other floating device on the waters of the Nottoway River in Sussex County, or to carry any firearm on a boat or a floating device on the said waters for the purpose of taking wild birds or wild animals except when such firearms are being transported directly across the said waters unloaded for the purpose of hunting during the open season in that section for the taking of upland game;

To use dogs for hunting bear, foxes and bobcats during open season for hunting deer in ALLEGHANY, AUGUSTA, BATH, BOTETOURT, CLARKE, FREDERICK, HIGHLAND, PAGE, ROCKBRIDGE, ROCKINGHAM, SHENANDOAH and WARREN Counties, and within the National Forest boundaries.

WATERFOWL REST DAY ON PAMUNKEY RIVER

During the general open season for taking waterfowl it shall be unlawful to hunt waterfowl on Wednesdays in that part of King William County beginning at West Point, following Rt. #30 to its intersection with Rt. #632, thence on Rt. #632 through Cohoke, Lanestown, Palls, to the intersection with Rt. #629, thence northwardly on Rt. #629 to the intersection with Rt. #618, thence along Rt. #618 to Rt. #360, thence southwardly along Rt. #360 through Manquin to the bridge over the Pamunkey River on Rt. #360, and in that part of Hanover and New Kent counties starting at the bridge across the Pamunkey River on Rt. #360 in Hanover, southwardly along Rt. #360 to the intersection with Rt. #606, thence eastwardly along Rt. #606 and Rt. #609 to Tallysville, thence Rt. #33 from Tallysville through New Kent Court House to West Point.

LICENSED BLINDS

Any person who hunts migratory waterfowl or shoots in the public waters of this State from a boat, float, raft or other buoyant craft or device nearer to any legally licensed erected stationary blind of another than five hundred yards without the consent of the licensee, except when in the active pursuit of a visible crippled waterfowl which was legally shot by said person, and any person who shall erect a stationary blind or anchor a floating blind in the public waters nearer to any other licensed blind than five hundred yards without the consent of such licensee shall be deemed guilty of a trespass and the owner thereof may maintain action for damages. The violation of any of the provisions of this regulation as to hunting migratory waterfowl from blinds located in this article shall constitute a misdemeanor and subject the offender to a fine of not less than ten or more than five hundred dollars, or confinement in jail not exceeding twelve months at the discretion of the court or jury trying the case. Furthermore, the board could immediately revoke the license of the blind owner where the offense was committed and he shall not have a similar license during the open season unless he can satisfactorily prove that the condition of his health would not be a hindrance to him in the performance of his duty. Any blind which has been previously shall be destroyed by the former owner or game warden.

No migratory game birds and game animals may be hunted from half an hour before sunrise to half hour after sunset.

Game birds and game animals may be hunted with a shotgun which shall not be larger than 10-gauge or capable of holding more than three shells at one loading (2 1/2 hole only); all magazines and live shell in the barrel or within the bow of any gun or pistol rifle.

Game tags must be presented to the State Game Warden at the Check Station to bear witness to the killing of game.

HUNTING REGULATIONS

OPEN HUNTING SEASONS AND BAG LIMITS

When open date for any species of game bird or game animal falls on Sunday, hunting will not be permitted until following day.

Quail*, Rabbits, Grouse, Turkeys**, Pheasants***:

West of Blue Ridge and on National

Forest November 21-January 5
East of Blue Ridge November 21-January 20

*No open season on quail on Gwynn's Island in Mathews County.

**Turkeys—CLOSING DATES exceptions:

west of Blue Ridge January 1
Alleghany, Augusta, Bath, Botetourt, Frederick, Highland, Page, Rockbridge, Rockingham, Shenandoah, and that section of Amherst and Nelson Counties lying within the National Forest area December 5
Culpeper, Fauquier and Orange Counties December 31
Stafford County January 5

Unlawful to hunt turkeys in Bland, Buchanan, Carroll, Charles City, Clarke, Craig, Dickenson, Floyd, Franklin, Giles, Gloucester, Grayson, Greene, Henry, Lancaster, Lee, Loudoun, Madison, Mathews, Montgomery, Middlesex, Norfolk, Northumberland, Patrick, Pittsylvania, Pulaski, Rappahannock, Richmond, Roanoke, Russell, Scott, Tazewell, Smyth, Warren, Washington, Westmoreland, Wise and Wythe Counties.

***Pheasants—Unlawful to hunt in Madison County.

Bag Limits—Quail, 8 a day, 125 a season; Rabbits, hunt and/or trap, 6 a day, 75 a season; Grouse, 3 a day, 15 a season; Turkey, 1 a day, 2 a season; Pheasant, 4 a day, 20 a season.

Exceptions—Turkey: bag limits in Alleghany, Augusta, Bath, Botetourt, Fauquier, Frederick, Highland, James City, New Kent, Page, Rockbridge, Rockingham, Shenandoah, and that section of Amherst and Nelson Counties lying within National Forest area, 1 a day, 1 a season.

DEER

Lawful to kill male deer with antlers visible above the hair in any county of this State where there is an open season.

See Bag Limits* (exceptions as to sex, seasons and bag limits).

Unlawful to hunt deer with dogs west of the Blue Ridge and in those sections of NELSON County lying west of Rt. #151, and in AMHERST County lying west of Rt. #29.

When deer are found doing substantial damage to crops or orchards, game warden may issue to owner permit to kill such deer when in act of doing damage. Carcass of deer so killed must be turned over to game warden for delivery to a charitable institution or hospital.

OPEN SEASONS:

East of Blue Ridge November 21-January 5
West of Blue Ridge November 21-26
Bow and arrow only, (in counties where there is a general open season), 1 a day, 1 a season, either sex November 1-10

In that section of AMHERST County west of Route No. 29 and in that section of NELSON County west of Route No. 151 deer may be hunted only (without use of dogs) November 21-26.

Exceptions—PRINCESS ANNE, NORFOLK and in that section of NANSEMOND County lying east of a line as follows: beginning at a point on State highway number ten where it intersects the Isle of Wight county line thence along such highway to its intersection with the corporate limits of the city of Suffolk; thence easterly, southerly and westerly with such corporate limits to their intersection with State highway number thirty-two; thence along such highway number thirty-seven; thence along State highway number thirty-seven to the North Carolina line. October 1-November 30.

ISLE OF WIGHT and in that portion of NANSEMOND County to the west of the line established in the foregoing paragraph November 10-January 5.

In ACCOMACK County it shall be unlawful to hunt deer on Mondays, Wednesdays, Thursdays and Fridays during the open season for taking the same, these being declared rest days, however, this shall not apply to Parramore Island.

Unlawful to hunt deer in the following counties: Arlington, Bedford, Bland, Carroll, Dickenson, Floyd, Franklin, Giles, Gloucester, Grayson, Halifax, Letcher, Madison, Marion, Mingo, Monroe, Morgan, Nelson, Nicholas, Pocahontas, Putnam, Raleigh, Scott, Summers, Tazewell, Wayne, Wise and Yancey. Unlawful to hunt deer in the following areas: in that portion west of New River, Henry, Loudoun, Luray, Madison, Marion, Northampton, Nottoway, Patrick, Pittsylvania, Prince William, Pulaski in that portion north of New River, Russell except in that portion lying on the southside along the line of Clinch Mountain running due north and south by U. S. Highway No. 58, in that portion of the state west of Moesasin Creek, Highland, Scott, Letcher, Johnson, Boone, Kentucky, where it intersects No. 579, following No. 679 westward, then turning No. 679 following No. 679 to Scott County, 10° during the open season for hunting deer west of the Blue Ridge Mountains and Wythe County north of Highway No. 58.

BAG LIMITS

The following bag limits on deer shall be as follows:
One buck deer a season statewide EXCEPT in Adams, Chesterfield, Dinwiddie, Greensville, Halifax, Isle of Wight, Nansemond, New Kent, Norton, Powhatan, Prince George, Princess Anne, Southampton, Sussex and York one buck a day, two a season.

Accomack one buck a season EXCEPT on Parramore Island one buck a day, two a season.

On Naval Mine Depot, the Cheatham Annex and Camp Peary properties either sex may be taken, one a day, two a season.

In Caroline, Essex, King and Queen, King William, Warwick City one a day, two a season, one of which may be a doe.

In Charles City one buck a day, two a season, except in that part of the Chickahominy Magisterial District lying between the boundaries of the James River and Route #5 from Barrett's Ferry Bridge to Berrier's Store, thence along Route #623, thence Route #613 west to a private road on W. L. Wilkerson's property, thence south to the James River, deer of either sex may be taken during the open season for hunting deer.

In James City one a day, two a season, one of which may be a doe on the last day for taking same.

In Smyth County south of Highway #11 deer of either sex may be taken on the last day of the deer season west of the Blue Ridge.

Lawful to hunt bear and deer either sex with bow and arrow November 1-10, except where there is a closed general hunting season on either or both species.

BEAR

OPEN SEASONS:

Statewide November 21-January 5
Bow and Arrow November 21-January 5

EXCEPTIONS: Bland, Giles, Grayson, Pulaski, Smyth, Tazewell, Washington and Wythe November 21-January 5

Bow and Arrow only in counties where there is a general open season November 1-10

Hunting bear west of the Blue Ridge Mountains with dogs during the open season for hunting deer is prohibited.

Princess Anne, Norfolk and that portion of Nansemond County lying east of a line as follows: beginning at a point on State highway number ten where it intersects the Isle of Wight County line, thence along such highway to its intersection with the corporate limits of the city of Suffolk; thence easterly, southerly, and westerly with such corporate limits to their intersection with State highway number thirty-two; thence along such highway number thirty-seven; thence along State highway number thirty-seven to the North Carolina line. October 1-November 30.

Isle of Wight and in that portion of Nansemond County to the west of the line established in the foregoing paragraph November 10-January 5

To trap, Statewide November 15-December 31

Bag Limit—One bear a season (trap and/or hunt).

Legal bear not less than 75 pounds live weight.

FOX

OPEN SEASONS:

Hunt with dogs, Statewide September 1-August 31

Exceptions:

Amelia unlawful, daytime only April 1-September 30
City of Warwick October 1-January 31
Fairfax, Fauquier, Loudoun, Rappahannock September 1-March 31

Hunt with guns:

East of Blue Ridge October 1-January 20

West of Blue Ridge November 21-January 5

Exceptions:

- (a) Open season on all National Forest lands November 21-January 5
(b) Except in Tazewell, season closes January 1
(c) Buchanan October 15-January 1
(d) Chesterfield, Franklin, Grayson, Patrick, Pittsylvania November 21-January 5
(e) Frederick, hunt with gun and/or dog, regardless of snow November 1-February 29
(f) King and Queen, Red fox, continuous open season with gun and/or dogs. October 1-January 31
(g) Lunenburg October 1-March 31
(h) Rockingham October 1-February 29
(i) Scott, Washington and Wythe October 1-February 29
(j) Rockbridge, continuous open season.
(k) Unlawful to shoot foxes in Albemarle, Amelia, Amherst (except in National Forest area), Appomattox, Charlotte, Clarke, Culpeper, Dinwiddie (Darville District only), Fauquier, Halifax, (except on regularly organized game preserves), James City, King George, Loudoun, Louisa, Nottoway (except red foxes), Prince Edward and Rappahannock.
(l) Lawful to hunt red foxes in Middlesex, Nottoway and Richmond Counties October 1-January 31
(m) Owner or tenant may kill or have killed foxes at any time on his own land or land under his control.

TRAP:

Unlawful to trap foxes with steel traps except when done on land by owner, members of his or her household, tenants, or those having permission to do so from the landowner or his or her agent.

Open Season: Statewide November 15-January 31

Exceptions:

Albermarle November 1-November 30
Buchanan Continuous open season
Nelson November 1-January 20
Richmond County November 15-January 31
Trapping foxes in Clarke, Fauquier, Loudoun and Rapahannock prohibited.

(Continued on page 23)



A beaver lodge in a forest lake in Chesterfield county.

Along Forest Waterways

By JOE L. COGGIN

Special Services Officer

TRY floating down the middle of a Virginia forest stream, quietly, slowly, eyes and ears wide-open, and treat yourself to the restful beauty and erratic hum of wildlife in its natural setting. Only along forest streams are some forms of plants and animals to be found. You may see them, hear them or merely see evidence of where they have been, but just to know that these plants and animals are around, some possibly spying with timid eyes, is excitement enough for the journey.

Early in the morning or late in the evening is about the only time you are likely to see a mink, since he is nocturnal in habit and very quick to escape your presence.

The food habits of the mink tell a great deal about the character of this interesting member of the weasel family. A muskrat might happen to make a tour of this forest stream, and if so, the mink could easily make a meal of him. Rabbits also comprise a large portion of his diet, as do snakes, mice and rats. He can even catch such elusive fish as trout. The mink has been known to attack beaver at times. Frogs, crayfish and salamanders may also be added to his diet but like most animals the mink also has his nemesis. High in a water oak or sycamore, a great horned owl may have eyes alert and claws tense for a midnight snack of mink.

Man, of course, also takes the mink to obtain his valuable hide. But let's not trap them all, but rather manage them and harvest only the surplus, so we shall continue to have mink to trap.

It won't be hard to find out whether or not beavers are inhabiting the stream. Often, clean white sticks, with all bark removed, will be found floating along the bank. These are leftovers of a beaver's meal. Or, you may see a dam made of sticks, stones and mud which the beavers have constructed across the creek for their "outdoor swimming pool." In the middle of the ponds which beavers create, they usually build a large conical shaped structure from the same kind of materials used to build the dam. This structure houses a large roomy den with underwater entrances which serve to keep the land-lubbers out. Sometimes they burrow in the bank to make their den. An old Indian legend has it that the burrowers are inferior technicians expelled from the group for poor workmanship.

Look around the banks of the stream and you will see where the beavers got the timber for all this prodigious construction. Along these banks you will probably find willow, poplar, birch, and maple which have been felled by the beavers. Not only does he use the logs for construction of his den and home, but the bark and twigs of these trees are his principal diet along with roots, grasses and berries that grow along the bank.

Due to the fact that North America's largest rodent has built himself a pond, he may have a regular collection of wildlife around him, especially birds. Wood ducks, water thrushes, kingfishers, tree swallows and crested flycatchers may come in to nest nearby, and blue herons stop in to look the place over. The pond

may also lure a few muskrats that never lived in that area before.

Don't expect trout fishing to be any better around the dam, because research has shown that the water has a tendency to be too still and warm and the bottom too soft and muddy for good trout habitat.

The high value of the beaver pelt was responsible for the complete extinction of the beaver in Virginia. However, the Virginia Commission of Game and Inland Fisheries, along with conservation-minded individuals, has re-established by restocking colonies of beavers which now number more than fifty in the state. Since beaver may ruin valuable orchards and corn crops, and flood rich farmlands, stocking of beaver must be done with considerable care and foresight.

Be sure to pay particular attention to any sandbars you may see along the stream, for tracks of various animals are often well presented in such places. If you see a track that looks as though it had been made by a small baby, you are probably standing where a 'coon had been the night before.

Although the raccoon may venture far from forest streams, he particularly likes to take his meals from the wildlife which the streams have to offer. He delights in hunting crawfish, snails, small fish and aquatic insects but doesn't hesitate to eat most anything that moves. Berries, fruit and corn are also eaten by the raccoon, and he might ask for trouble by invading a farmer's chicken house to feast on a chick or an egg or two.

From the raccoon's specific name, *lotor*, which means "washer," we might expect that he washes his food before he eats it. That's right, he does. But don't flatter his table manners too much, for many of his meals are consumed far from water and raccoons kept in captivity often do not show this trait.

The nocturnal habits and shyness of the 'coon make him an unlikely target for your eyes. Just in case you encounter what looks like a "bit of hallowe'en left over"—masked face, short pointed ears and glaring eyes look-



The nocturnal habits of the beaver are well known by the evidence that is left by old chiseltooth. These interesting woods workers are on the increase in Virginia.

ing out at you from his den in the hollow of a tree—you are very lucky indeed, because you are looking at Mr. 'Coon.

If you are so fascinated by this creature that you want to stock a few in your neighborhood, be careful how you go about it. Get advice from your Game Commission in Richmond, Virginia. Buying breeding stock from the distant southern states and releasing the animals on your property may not work out to your expectations. A radical change in climate and habitat often work to the detriment of the species. Transferring them from the Tidewater area of Virginia to more western areas of the state has proved to be a more successful method.

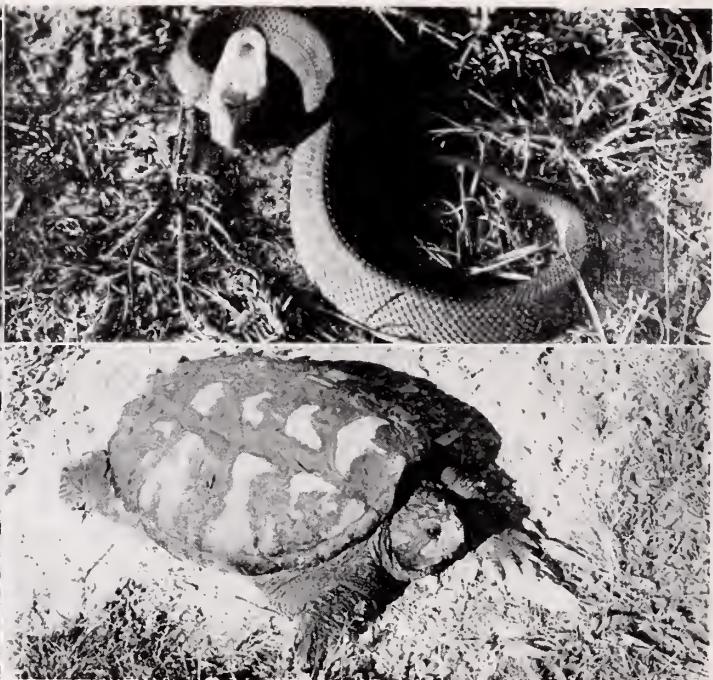
Of course there are many other mammals besides the ones mentioned above which may frequent forest streams. Rabbits, squirrels and a casual white-tailed deer might be seen, but don't miss the frogs, snakes and turtles that are almost sure to be there.

When a snake slithers into the water from a pile of brush or an overhanging limb, don't be frightened by him. He is just doing the only thing he knows to escape from you. The odds are that he isn't poisonous anyway, because there are only three species of poisonous snakes native to Virginia: the cottonmouth moccasin which occurs in the Dismal Swamp area and on the south side of the James below Hopewell, the rattlesnake of the mountains and the copperhead, which is the most widely distributed of the three. Of course neither the rattler nor the copperhead is a true "water snake." If you do run across any snakes along the banks, just leave them alone and they won't bother you.

About the ugliest creature you are likely to see in a Virginia forest stream is a common snapping turtle. His very name implies that it is a good idea to keep your fingers away from his head. His beak is very sharp and powerful and he can completely amputate a man's finger with a well-directed snap. It has been said that they can't bite underwater, but they can eat a meal underwater if necessary, so be careful how you pick



A frequent woodland waterways traveller is the mink. It is still one of the prized furbearers in America.



Denizens of the forest waterways may include a host of animals including the raccoon, cottonmouth moccasin and the snapping turtle. The cottonmouth is fairly rare in Virginia, found only in the back bay area, the Dismal Swamp, and up the tidal rivers as far as Petersburg.

him up! If you come to an area in the stream where the bottom is soft, you may also find a musk or possibly a mud turtle.

Keep a very sharp lookout for frogs along a forest stream because there aren't many except in the "low places." The leopard frog or grass frog may plop into the water ahead of you. Watch one swim for the nearest rock or under a clump of vegetation to hide. These are not the large species of frogs that man likes to eat, but apparently they are very tasty morsels for trout, raccoon and mink.

The following plants are to be found in various woodland areas as well as along forest streams. In springtime you can't miss the violets. Their colors may range from the rare white to deep purple and often are mingled with a canopy of ferns. Higher up on the bank you may locate some white trillium, bloodroot or hepatica. Be very careful about picking them and leave the jack-in-the-pulpit entirely alone, for you won't find many of those.

CONTEST (*Continued from page 9*)

made with the educational specialist nearest the school. The men in charge of this work are:

Northern District,

Mr. Max Carpenter
R. F. D. #1
Dayton, Virginia

Western District,

Mr. Joe L. Coggins
Wildlife Unit, Dept. of Biology
V. P. I., Blacksburg, Va.

Eastern District,

Mr. Dan Cantner
Biology Department
College of William & Mary
Williamsburg, Va.

These field men will give valuable suggestions to

Growing from the top of a ridge all the way down to the stream's edge you may be confronted with an impenetrable thicket of mountain laurel or rhododendron, forming a sounding board for hundreds of chirping warblers, and their blossoms magnifying the beauty of the countryside.

High up on the tips of the branches of a tulip tree you will be amazed at the site of one of our most gorgeous flowers. This is a relative of the magnolias with a similar cup-shaped flower of yellow-green color. There are also hundreds of other beautiful flowering plants. Carry a field plant guide with you and enjoy trying to identify the various plants you see.

The secret of keeping our streams running clear and bountiful with the many forms of wildlife we now have is good soil, forest and wildlife management practices. Let's learn about what we have, think before we act and act wisely.

schools on the essay contest or the teaching of conservation and how to go about it. Their services can be had upon written request.

Education has been defined as training youth for their station in life. Today it is recognized that youth must be trained to appreciate resource values which lie at the foundation of our democracy, or, history is likely to repeat itself in America and we could end up as a have-not nation. Conservation education is fundamental. It is increasingly important. The annual essay contest is one small pathway for learning to understand some of these fundamentals.

Fish Conservation Fundamentals

By R. W. ESCHMEYER

Habitat Improvement

(The fourth of a series)

TO thrive, fish need water. This was the extent of our thinking some decades ago insofar as habitat was concerned. Now we fully realize that there are other habitat needs. The fish must have proper water temperatures and the waters must be suitable chemically. Food must be available in suitable amounts. Spawning facilities must be present if we expect to have natural propagation. Some species do not remain in an area unless they have places where they can hide.

Each species has its own environmental needs. These must be recognized if our habitat programs are to be effective. Unfortunately, for many species, we still don't have as complete a picture of these needs as we should have.

In laying out our streams and lakes, Mother Nature showed no particular interest in supplying all the needs of the creatures which would inhabit the waters. But the species themselves, over long periods of time, became adjusted to the situation, or disappeared. Consequently, desirable species of one kind or another were

Pollution, as well as siltation, is a major destroyer of fish habitat. Many a stream or lake is no longer suitable for fishing because of the discharge of untreated or inadequately treated domestic or industrial wastes.

RESTORATION IS POSSIBLE

We now have good examples of habitat restoration. An excellent one is in the Clark National Forest in Missouri, where the Forest Service is gradually converting the watersheds back to their original conditions insofar as siltation and in-soak are concerned.

According to a report in the Forest Service files, a half of this forest area can now take heavy rains up to two inches directly into the soil, without run-off. In this area many streams and springs have returned to permanent flow, instead of being intermittent. The streams are now referred to as "milky," not "muddy," following heavy rains. During a recent dry summer the flow at one point in the Current River was 1600 cfs, as compared to 1250 cfs in the less severe droughts of 1934 and 1936. Plant and animal life in the streams is in much greater evidence now than in 1936. Fishing has improved, and on several of the waters is reported as the best in the memory of the present generation of anglers.



adapted to most of our waters when settlement began. Though there are instances where we can improve on the habitat Nature provided, most of our environmental improvement work is really restoration - correcting deficiencies which we, ourselves, created in the fish habitat.

HABITAT DESTRUCTION

The extensive destruction of fish habitat by man's activities need hardly be mentioned - we're all aware of it.

As an example, a survey made by the Soil Conservation Service in Whitewater River watershed in Minnesota indicates that originally this watershed had 150 miles of good trout stream. By 1941, as a result of poor land management and erosion, the watershed had only 60 miles of trout streams and this mileage was in poor condition.

STREAM IMPROVEMENT

In those remaining instances where man has not tinkered with the watersheds, habitat improvement is usually not needed. Here, except in arid land and semi-arid regions, the stream flow tends to be relatively constant, because of permanent flow of springs. Gravel riffles and deep pools are generally available, and there are plenty of hiding places for fish.

This observation gives us an important clue with respect to proper stream management. It's pretty much a matter of watershed use. Where the soil is kept on the land, through proper land use, and where a substantial part of the rainfall soaks into the ground to appear later as cool spring water, a stream will usually restore itself - provided livestock is fenced out.

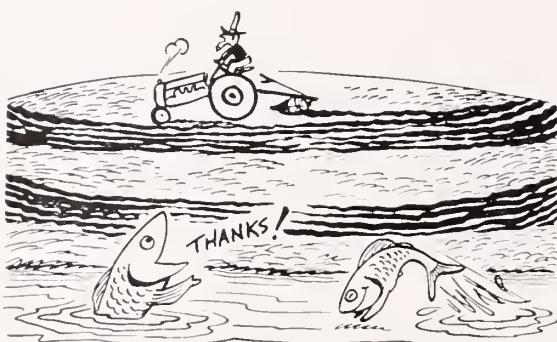
Where we have heavy siltation because of poor farming, improper forest use, over-grazing or faulty road building, and where we have excessive run-off, resulting in high waters at times and little or no flow at other times, the use of stream improvement structures is of little or no value.

There are numerous instances where stream improvement structures such as V-dams, covers, deflectors, etc.,

are helpful. There are also many instances where these artificial improvements don't justify the costs involved, either because they are not needed or because they do nothing to correct the basic problem of siltation or highly irregular stream fluctuation. Too, some amateur attempts at stream improvement may actually do more harm than good.

Before stream improvement (by installing devices) is attempted, the situation should preferably be studied carefully by someone familiar with fish needs and with water-flow and siltation problems.

We are not trying to minimize the value of stream improvement devices. We are implying that where such devices seem to be badly needed, the basic trouble usually lies in the watershed, not in the stream bed itself. We can channel silt downstream, but this is not a good substitute for preventing its entrance into the stream in the first place. We can create pools in streams which have very low water stages, but that's no substitute for the rapid and constant flow of springs resulting from having much of our rain soak into the soil. We can remove obstructions to migrations of anadromous fishes, but no amount of "improvement" will restore good habitat so long as the water is polluted by industrial or domestic wastes.



LAKE IMPROVEMENT

Numerous attempts have been made to improve habitats in lakes, by use of such "devices" as brush shelters, spawning beds, planting of aquatic weed beds, fertilizing, etc. Some have been helpful; some haven't.

Brush shelters do attract young fish. But, all too often, the fish which find shelter there are species such as sunfishes and perch, which tend to be over-abundant and stunted. The value of sheltering young fish is subject to question. But big fish of some species (such as black crappie) are attracted to the vicinity making possible a greater harvest of these fish. In big waters particularly, only small percentages of these fish are harvested. Here, concentrating them to simplify their capture is a good conservation measure.

We once believed that weed beds in lakes and ponds were vital to fish life. This observation was erroneous. Today, farm pond specialists don't want coarse aquatic vegetation in ponds. Too, large TVA storage reservoirs have produced good supplies of fish without aquatic "weeds."

From the standpoint of fish production, weed beds in general may do more harm than good. They protect the young pan fish from their predators and thereby cause overpopulation. But, in all except small lakes,



weed beds (unless too abundant) help decidedly in harvesting the adult fish. The weed beds tend to concentrate the catchable fish, so that anglers can take more of them.

Overabundance of vegetation is a major problem in some waters. Fertilizer has been used effectively for weed control in some instances, and certain herbicides have also been used extensively. There's still no simple, universal method for control of overabundant aquatic vegetation.

Gravel spawning beds for bass have been placed in some waters. There's proof that fish use them, but we still know of no concrete evidence to prove that introduction of spawning beds has increased the bass population.

Fertilizing with commercial fertilizer has greatly increased the fish crop in ponds in some areas, especially in Alabama. Elsewhere it has been of questionable value. For example, here's a paragraph from an article in a recent issue of the OHIO CONSERVATION BULLETIN:

You hear a lot today about adding commercial fertilizer to farm ponds. As far as fish production is concerned in Ohio, you can forget about it at present. As already stated, the main problem with ponds is that they are overpopulated. This is an indication that the ponds are already fertile enough to produce more fish than are harvested.

Water-level management offers a number of possibilities, such as raising the level to provide better marshy border for northern pike spawning; or lowering the level for a period to permit land vegetation to grow on the temporary exposed shoal.

There are other lake improvement possibilities, such as adding lime to over-acid waters, or pumping nutrient materials from the deep bottom (where they are of little value) onto the food producing shoal areas (where they are valuable), or removing ice cover to prevent winter-kill.

Like stream improvement, lake improvement offers definite possibilities. And, like stream improvement, it has definite limitations.

IN GENERAL

Various habitat improvement devices and manipulations have a definite place in fish management, but the important fish habitat improvement problem is one of general land use. With the limited funds available for fish work, the fishery workers can't begin to restore the watersheds. The problem is far too big, and too costly.

But, watershed improvement is progressing rapidly. The improvement is needed for other reasons.

Farmers must keep their all-important topsoil on their land. It's their life-blood. Too, they must manage their land to permit a considerable amount of rain-water in-soak, so the plants will have water in the long periods between rains.

Over-grazing hurts the rangeland and pasture - it reduces future carrying capacity.

Forest fires destroy future timber values - as well as harming fishing.

Pollution abatement is needed because of other water uses - recreation, drinking water, and the growing need for large amounts of clean water for certain industries.

Because of the increasing improvement in the use of our soil, water, and forest resources, we can expect a gradual improvement in our fish habitat. There's another relationship between wise use of these resources and fishing. Without our high standard of living, maintainable only by the future wise use of these resources, there wouldn't be sport fishing. Hungry people don't fish for fun. They seek food, not relaxation.

In general, the use of artificial devices in the water will benefit the fish habitat in some instances. Better use of the watershed and its resources will benefit the fish habitat in most instances. Though it might seem far-fetched at first thought, our soil conservation programs, forest fire prevention programs, etc., are all-important to the quality of your fishing.

SASSAFRAS

The Mystery Tree

By ROBERT E. DILS

ONE of the most interesting trees which we find in Virginia is the Sassafras. The Sassafras is easy to identify by its various mitten-shaped leaves which usually turn orange or orange-red in the fall. The buds and the twigs which turn up like candelabra are a bright green color. The fruits of the Sassafras tree are blue drupes born in clusters of 2 or 3. It is a very prolific tree which spreads so rapidly (primarily by sprouts from the roots) that farmers frequently regard it with dismay.

Almost since the discovery of America, strange superstitions and legends have been associated with this tree. Many of the superstitions surrounding the Sassafras probably have their origin in the existence of a volatile oil of strong pungent odor in the bark and roots.

For centuries it was common belief that sleep would be sounder in a bed made from the wood of Sassafras. Paddles for mixing and stirring homemade soups were made of Sassafras. At one time twigs and roots were placed in chicken houses to drive away rats. Sassafras is probably most famous for its purported medicinal value. About the middle of the 16th century, the French learned from the Indians the medicinal value of the Sassafras and in 1569 the first account of this tree was published by the Spanish physician, Monardes.

Sassafras tea is still made from the roots of the tree by steeping in hot water. In case you are interested in trying some Sassafras tea, collect a quantity of roots,



The Sassafras grows to be a small tree. The roots of the bark make a fine drink and the three types of aromatic leaves give the tree special distinction.

preferably in late fall or early spring, wash them thoroughly, place in a pan of water and boil for approximately forty-five minutes. The tea will be red in color and you can drink it hot or iced and you may add cream or sugar to suit your taste.

In colonial America it was thought to be a blood purifier and tonic. It was a common sight to see large roots

hanging in kitchens where it was hacked off as needed. In Louisiana the Choctaw Indians made gumbo filet, a powder from ground Sassafras leaves and buds, which was used to give consistency to gumbo soup.

Less than 25 years ago packages of Sassafras, consisting of bundles of smaller roots together with split larger ones cut in 5-6 inch lengths, were common in our grocery stores. Oil of Sassafras, which is richest in the bark of the roots, still has extensive commercial value in flavoring candies and soda pop as well as medicines and in scenting soaps and other toilet articles. The wood of Sassafras makes excellent rustic signs since the bark does not readily peel off. In addition it can be used for paneling, furniture and cabinet work.

GLADES DEER (*Continued from page 7*)

yearlings, 4 of 8 two and a half year-olds and 15 of 16 doe older recorded as lactating. This data follows closely that information obtained from the ovaries in that it shows breeding in none of the fawns, about one-half of the yearlings and 60 percent of the total—very similar to the above ovary analysis. There was some overlapping in the two deer samples but even at that the recording of lactation appears helpful in arriving at the percentage of doe deer successful in rearing fawn. Such collection of data would, of course, have to be made early in the fall.

LOSS MEASUREMENTS

After the season Mr. Rose, the Game Manager, located three adult bucks, six buck fawns, seven does and four doe fawns on the permit area—all but one having died of gunshot wounds. These losses must be considered as crippling or as outright illegal kills. Of significance is the fact that 20 percent of the legal antlerless take was found as wasted. That fraction of the total loss located is, of course, unknown. It certainly points up, however, the carelessness of hunters, the losses occurring under a buck law and perhaps even the attitude of the public.

SUMMARY

A limited harvest of antlerless deer was conducted in about 80 square miles around the Glades Area of Wise and Scott counties by permittees on November 15-16, 1951. Total hunting pressure in the area was estimated at 1600 opening day.

On the first day, 200 permittees bagged 63 deer. On the second day, 100 permittees brought in 29. This gave a success ratio of 31 percent on one day permits.

A total of 139 deer were handled at the two check stations; 83 counted as antlerless, 81 which were actually doe or fawn. Composition of sample was 59 adult bucks, 22 buck fawns, 38 adult doe and 18 doe fawns—with two unaged does added. All antlerless but not all of the adult bucks were tagged at the two stations.

For that part of the open area reporting deer kills (29 square miles), it is estimated that 60 bucks were taken. This would give harvest ratio of 2.0 adult bucks and 2.8 antlerless per square miles.

The physical development of the deer was very similar to deer of the same blood lines sampled in other areas of the state, with antler development being poorer.

Age classes of adult bucks indicate an average annual removal of about 60 percent. Doe age classes indicate a fall fawn rearing success of 65 fawn per 100 doe over the years. The kill ratio was over 100 per 100.

At the time of collection, 4 of 29 adult does had ovulated, this being 14 percent. Ovary analysis showed that of each 100 doe deer of all age classes each fall, 60 conceive and have a reproductive potential of 80 fawns for an average of 1.33.

Nearly 60 percent of the adult does were lactating. No indication of fawn breeding was found.

Seventeen dead antlerless deer were found on the area after the season, this being 20 percent of the legal take.

CONCLUSIONS

The hunt was successful in that it harvested adequately the deer in part of the area opened. The deer and hunters were concentrated as is usually the case. It failed in spreading out the pressures and getting a distributed harvest.

Regardless of pre-season warnings that they had gone, the deer were definitely there as shown by the kill locations.

A high percentage of fawns can be expected in an antlerless shoot on the first day.

The high success of permittees reflects the concentration of deer and also the strong desire to get a deer.

The physical development of the Glades deer is similar to others in the state which belong to the southern sub-species of the white-tailed deer.

The antler development is poor, but no worse than a few other areas in the state. It is merely accentuated due to the close cropping of the bucks and the resultant higher percentage of yearlings in the herd.

Population pressures and/or nutritional deficiencies have eliminated any evidence of fawns breeding, have lowered the expected percentage of yearling does breeding and have reduced overall productivity to an undesirable low level.

There was no great influx of hunters to the area.

In the middle of November, a high percentage of adult does can be expected to be still lactating in this sub-species.

The indicated level of productivity allows for only about 23 percent mortality annually in the female population if herd stability is to be possible. This alone accounts for the lowered rate of herd increase when compared with other restocked areas.

Want More Rabbits?

Do you sometimes feel there is little that individual sportsmen or organized clubs can do for wildlife?

Do you think that game management is complicated and can only be done successfully by "experts"?

Here's a simple but successful cottontail rabbit management technique that can be done by anyone. It doesn't require expensive equipment, doesn't take much time, and best of all, produces more rabbits.

This simple practice was tried by the Pennsylvania Game Commission personnel on State Game Lands No. 117, in Washington County, Pennsylvania. A four-foot



If you want more rabbits on your farm the experiment in the Quaker State may be worth investigating.

HUNTING REGULATIONS (Continued from page 15)

MINK, OPPOSUM AND RACCOON*

OPEN SEASONS:

Statewide to hunt October 15-January 31

Exceptions:

National Forest area November 21-January 5
Essex, continuous open season on raccoon.

*Raccoon may be hunted in the counties of Accomack, Amelia, Appomattox, Brunswick, Buckingham, Campbell, Caroline, Charles City, Charlotte, Chesterfield, Cumberland, Dinwiddie, Fluvanna, Goochland, Gloucester, Greensville, Halifax, Hanover, Henrico, Isle of Wight, James City, King George, King and Queen, King William, Lancaster, Louisa, Lunenburg, Mathews, Mecklenburg, Middlesex, Nansemond, New Kent, Norfolk, Northampton, Northumberland, Nottoway, Powhatan, Prince Edward, Prince George, Princess Anne, Richmond, Southampton, Spotsylvania, Stafford, Surry, Sussex, Westmoreland and York and in the cities of Warwick and Hampton October 1-January 31.

Statewide to hunt and trap mink December 15-January 31
Statewide to trap Opossum December 1-January 31

Statewide to trap:

*Raccoon (closed season) except in the counties of Accomack, Amelia, Appomattox, Buckingham, Brunswick, Caroline, Charles City, Cumberland, Dinwiddie, Gloucester, Greensville, Halifax, Isle of Wight, James City, King George, King and Queen, King William, Lancaster, Lunenburg, Mathews, Mecklenburg, Middlesex, Nansemond, New Kent, Norfolk, Northampton, Northumberland, Nottoway, Powhatan, Prince Edward, Prince George, Princess Anne, Richmond, Southampton, Surry, Sussex, Westmoreland, York and in the cities of Hampton and Warwick December 15-January 31

Essex, trap raccoons January 1-March 15

Bag Limits—Opposum and mink: None. Raccoon, 3 a day, 20 a season, except National Forest areas, 2 a day, 12 a season; Scott County, 1 a day, 3 a season; individual or organized hunt.

RABBITS

OPEN SEASON—To trap November 15-January 31
Bag Limit—6 a day, 75 a season, hunt and/or trap.

MUSKRAT AND OTTER

OPEN SEASON—To hunt none
To trap otter December 15-February 28
To trap muskrats January 1-March 15
No Bag Limit.

BEAVER

OPEN SEASON—To hunt none
To trap By special permit to landowners

swath was moved through heavy briars with a scythe. A few small trees were cut and the stumps removed. The strip, resembling the letter "S", was then raked clean of dead sticks and stones. It was prepared for mowing, much as you would prepare your own lawn at home in the spring. When the competition was eliminated in this manner, the clovers and other grasses already present in the strip began growing. They provided that much needed and basic food of the cottontail. With the cover of briars close by, the combination was ideal.

The strip was mowed twice weekly with a conventional type lawnmower. The expected guests were there, of all age groups. Nine were observed in a 50-yard strip, eating the new succulent growth of clover and grasses but still just one jump away from safety in the briar thicket. In the majority of areas available for such a practice, the clovers and grasses are already present but unable to grow because of competition by other plants. Where they do not come up voluntarily, some effort will be needed to prepare a seed bed and do some liming and seeding.

This is a wildlife management practice we see all about us every day. After all, don't you often see many rabbits on well-kept lawns, in parks and on golf courses. But we must apply it where we want the cottontail. Simple but successful - try it.

R. D. Parlaman, —*Pennsylvania Game News*

SQUIRRELS

OPEN SEASON:

East of Blue Ridge November 21-January 20

West of Blue Ridge and
National Forest areas November 21-January 5

EXCEPTIONS: Accomack, Bedford, Fairfax, Fauquier, Isle of Wight, Loudoun, Nansemond, Norfolk, Northampton, Prince William October 1-15
November 21-January 20
Clarke, Frederick, Page, Rockingham, Shenandoah and Warren October 1-15

November 21-January 5

Bland, Buchanan, Craig, Dickenson, Lee, Montgomery, Pulaski, Roanoke, Russell, Smyth, Tazewell, Washington, Wise & Wythe September 15-30 November 21-January 5

Carroll, Henry, Franklin, Pittsylvania, Patrick September 1-January 20

Grayson and Giles September 15-October 15

November 21-January 1

Albemarle, Greenville and Southampton September 1-15

November 21-January 20

Floyd September 15-January 20

Scott September 15-January 5

Bag Limit—6 a day, 75 a season.

Trapping squirrels is prohibited.

ELK

OPEN SEASON

QUANTICO MARINE RESERVATION

The seasons and bag limits for hunting wild game birds and wild game animals within the Reservation shall conform with the general open hunting seasons East of the Blue Ridge Mountains.

NATIONAL FORESTS

Unlawful to hunt with either gun or dog or have in possession or in car any uncased firearm during general closed hunting season, except with bow and arrow only, for bear and deer November 1-10.

STATE FORESTS

Should there be an open season on any species of game bird or game animal, announcement will be made on or before November 1, 1955.

NATIONAL PARKS

National Parks are wildlife sanctuaries; hunting and possession of firearms in these areas prohibited by Federal Regulation.

STEEL TRAPS

Unlawful to trap with steel traps except when done on land by its owner, members of his household, tenants, or those having permission to do so from landowner or his agent. Traps of any kind set on the lands or waters of another shall have attached the name and address of the trapper thereto.

Unlawful to set steel bear traps in Nansemond, Norfolk and Princess Anne Counties.

Note—Should an emergency arise with reference to any species of game bird or game animal during the open season provided herein, the Commission reserves authority to curtail or close entirely the season on such species.

Copy of Migratory Game Bird Regulations available upon request.



Nine Complete Hunter Safety School in Gloucester

Instructor John W. Courtney, Jr., of West Point has sent us the list of successful candidates from Boy Scout Troop 111, of Gloucester, Virginia. They include two thirteen-year-olds, Stephen Guy Hogge, of Schley, and Beverley Robertson Holcombe, of Gloucester. There were six twelve-year-olds: John Carroll Bohannon, of Bellamy; Andrews James, Jr., of Schley; Lloyd Cary Carlton, James Hevern Hall, John Mumford Wiatt, Jr., all of Gloucester; and Lawrence Edward Hersog, of Zanoni.

Another successful candidate was fifteen-year-old Earlene Sylvia Carlton, of West Point.

Seventh Federal "Duck Stamp" Contest

The seventh annual federal "duck stamp" design contest is now open and entries for the design must reach the headquarters office of the Fish and Wildlife Service, Washington 25, D. C. on or before November 1, 1955.

All interested artists are eligible to enter the contest for the design to be selected for the 1956-57 issue of this series of federal revenue stamps. The Migratory Bird Hunting Stamp—better known as the "duck stamp"—first went on sale in 1934 and has since then become familiar to sportsmen and philatelists. A new stamp is issued each year by the Post Office Department. It goes on sale July 1 and expires the following June 30. Everyone over 16 who hunts migratory waterfowl is required to have one of these stamps which sells for \$2.

The design is selected by a judging committee of waterfowl authorities. All interested artists are eligible to enter this contest. Though there is

no direct compensation, the distinction usually enables artists to capitalize on their designs as by selling autographed prints.

16-Point Buck Winner West of Blue Ridge

The beautiful 16-point buck which took first place in the big game trophy contest west of the Blue Ridge for 1954 will give 1955 hunters something to dream about before the coming season.

Killed by T. M. Swearingen, of Millboro, the big buck weighed 219 pounds, hog dressed, and had a nice symmetrical rack as can be seen from the photograph of the mount, prepared by James R. Stull, of Covington.

and Joiners of America contributed a check for \$75,000. The woods is located near New Brunswick, New Jersey.

William Cole, secretary of the Citizens' Committee for the Preservation of Mettler's Woods, said the surplus would provide a "capital fund for maintaining and operating the tract . . . considerably larger than originally planned." The 136-acre woods will be administered by Rutgers University as an outdoor scientific laboratory.

Good News for Duck Hunters

From Ducks Unlimited comes word that waterfowl nesting in western Canada's prairie provinces produced a good first hatch, that the overall pictures shows the brood average to be better than six young, and second nesting attempts by ducks which lost first clutches were observed.

"Conditions as they exist over the whole range and the duck crop now in sight are both infinitely better than they were last year at this time," says Chief Naturalist Bert W. Cartwright.

However, nesting success has been variable in certain parts of the west and among different species. In Manitoba, the mallard and pintail hatch in pothole country was disappointing in first nesting attempts. Floods, agricultural activities and predation were blamed. Over-water nesting canvasbacks had much better nesting success. Canada geese nesting on Hecla Island in Lake Winnipeg, Manitoba, suffered heavily from flooding. Saskatchewan "has the best surface water conditions within living memory and a duck crop in sight now which . . . promises to match or surpass the bumper crop of 1952."



West of the Blue Ridge, winner.

Mettler's Woods to be Preserved

The campaign to raise a fund to purchase and preserve the unique, virgin tract of native hardwood timber known as Mettler's Woods went over the top by \$32,000 when the United Brotherhood of Carpenters

More Sheep in Virginia — Less in the Nation

There are 3,000 more sheep in Virginia in 1955 than in 1951 and 20,000 more than the ten-year average for 1944-53. This was the reverse of the national trend which showed a two percent decline in the sheep population.

The 295,000 sheep sheared in Virginia in 1954 produced 1.59 million pounds of wool, an average of 5.4 pounds per sheep shorn, an increase in wool production of 3.8 percent over the average of a decade ago. The 1955 clip is expected to show an increase of about 5 per cent, with a return of over a million dollars. This would include some \$180,000 from incentive payments on clipped wool and \$120,000 on pulled wool from lambs sold for slaughter.

Virginia sheep growers expect to increase their average fleece weights as pastures improve. In neighboring state, fleece weights have been increased by a change in the breed of sheep, proper feeding and management of ewes, regular treatment of all sheep for worms, early shearing and other practices.

There have been price declines from the high points of 1951-52, but it is believed prices will be stable for the next few years.

One of the greatest menaces to a rapid increase of sheep population in Virginia has been free-running dogs, but County Agent Hepler, of Montgomery County, has reported a new plan being used in that county which is expected to cut down on losses of sheep and lambs because of dogs.

IWL Plans Fredericksburg Convention

The Fredericksburg-Rappahannock Chapter of the Izaak Walton League sends notice of a convention to be held at the Princess Anne Hotel and Chapter Clubhouse tentatively on September 23 and 24.

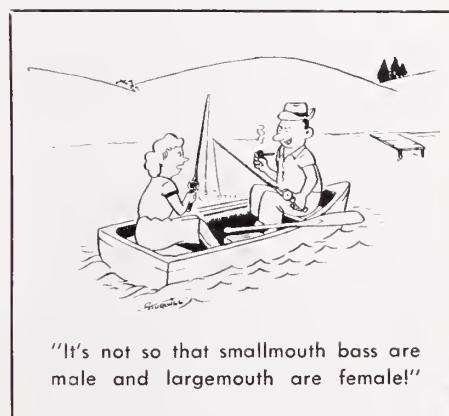
The Chapter also sends a reminder of the Dog Mart to be held in Fredericksburg on October 15 and reports that 20 students have completed the Hunters Safety Course.

Trout Stream for Artificials Only Proves Popular

The three streams in Shenandoah County where fishing with artificials was prescribed for trout, apparently has proved a point: Virginia trout fishermen can have fun on streams where natural baits are outlawed.

According to Forest Supervisor A. H. Anderson and Assistant Supervisor Pete Hanlon, of the George Washington National Forest, no complaints have been registered on the new regulations which went into effect this spring on the use of artificial bait only in sections of Little Stony, Laurel Run, Passage and Cedar creeks in Shenandoah County.

"What remarks we do hear are favorable," the supervisor says. "We could use more such places over a greater part of the forest."



Advice on Bass Bug Spinning

In a recent article in *The Fisherman Magazine*, Earl Osten gives some good advice on spinning with bass bugs. First of all, says Osten, "lead-wire windings should be added immediately behind the body." From three to five inches should be wound on the popper. "Lead shot pinched onto the hook shank will also do the trick," he says.

He recommends four-pound or less monofilament line. He says that he himself prefers a three pound test with a foot of six-pound leader tied between the bait and the running line to prevent breakage from the dorsal fin when the fish whirls around after taking the lure.

"Always fill your spool to the utmost limit of its capacity," is an important rule, according to Osten, since "you cannot expect a bass bug to drag 40 feet of line up and over the exposed lip of a partially filled pool."

A light action, 7½-foot rod, without too much tip action, is ideal, Osten says, for bass bug spinning.

Fish Becoming Farm Crop in Augusta County

O. J. Ziegler, Augusta Soil Conservationist, reports that about 200 farm fish ponds in that county have been stocked with bass and bream during the past five years. The ponds vary in size from one quarter to three and a half acres and the rate of stocking has been 75 bass plus 750 bream per acre of water surface.

It has been proved, says Ziegler, that a well-managed acre pond produces more pounds of fish than it would of beef if left in grass. One acre will carry about 500 pounds of fish and, if properly managed, about 300 pounds can be harvested annually.

Not every pond is suitable for fish. In size a fish pond can be from one third of an acre, but the larger the better, and at least six feet deep over most of the area, with the watershed protected from erosion and the drainage water should not come from a barnyard, turkey range or anywhere there is a concentration of manure, Ziegler warns.

The trend reported for Augusta County seems to be gaining momentum in many other Virginia counties. The Game Commission has available a booklet by Philip F. Allan, Northeastern Biologist, Soil Conservation Service, called "When You Build Your Fish Pond" which is available on request from the Commission, 7 North Second Street, Richmond 13. This leaflet gives advice on location, watershed requirements, soil of the pond site, adequate depth, building spillway and dam, packing of soil in construction, and other helpful information.

Field Force Notes

Wildlife Federation Meets in Buckingham

The Virginia Wildlife Federation held another active quarterly directors' meeting on the property of congenial host and past president Dr. William Pennington, in Buckingham County. A picnic lunch was served.

President Floyd Yates conducted a full program of business during which several officials of the Game Commission were called upon to report on activities. G. W. Buller, chief of the Fish Division, explained the position of the Commission in its restocking program and its efforts in building public fish ponds. J. J. Shomon, chief of the Education Division, and Stuart Davey, the Commission's deer specialist, also spoke briefly.

J. H. Adams, of Richmond, presented a report on the seriousness of the loose running dog menace and pleaded for action.

Plans were made for the annual meeting to be held in Alexandria this October and notice was given to keep a watchful eye on fish and game legislation in the next General Assembly.

Executive Secretary Bill Newsome assisted the Federation president most ably and received a vote of thanks. National Federation Conservation Director Charlie Callison was on hand and gave a short report on the national conservation picture.

Pittman-Robertson Benefits to Game Program

A bill setting out a five-year program for the distribution of surplus Federal-Aid wildlife funds, was passed by the House in the closing hours of the session on August 2. This Pittman-Robertson money will be allocated among the states, with approximately \$50,000, additional each year as Virginia's share to further the expanding game program in the state.

Senator Robertson Lands A Lunker in Labrador

During a visit to Labrador, Virginia's junior Senator, A. Willis Robertson, landed a beautiful six-pound brook trout and probably had a pretty good scrap on his hands for awhile.

"Of course," wrote the Senator to Executive Director I. T. Quinn, "I am not too proud of having caught it on a casting rod with a dare devil spoon, but the ice had just gone out of those lakes and the fish had not commenced to do surface feeding. When I hooked this trout I was



Senator A. Willis Robertson with a prize brook trout.

standing in the lake just to the left of the man who is shown in the background of the picture. Even on the heavy tackle I was using he gave me quite a battle."

Robertson's association with our Commission goes back a long ways, for the then Major A. Willis Robertson was appointed first chairman when the Virginia Department of Game and Inland Fisheries was separated from the Commission of Fisheries in 1926 and set up as an independent Commission.

Wardens Complete Magazine Drive

Commission game wardens and conservation officers have completed another successful subscription drive for *Virginia Wildlife Magazine*. A three months' drive increased the magazine circulation by 3,652. There will be more detailed news of the successful drive with names of the top men, prizes awarded and other reports in the next issue.

We already know that it was the most effective drive held to date and the participants are all to be congratulated.

Successful Game Warden School Held

August 18th saw the completion of another successful game warden school on the campus of the Virginia Polytechnic Institute. Executive Director I. T. Quinn was in charge, with instructional support from his administrative staff.

In addition to all the county game wardens and the conservation officers who attended the school, all of the Commission's technical staff were also present.

The opening address by Executive Director I. T. Quinn was followed by talks by Dr. Walter S. Newman, president of Virginia Polytechnic Institute, and Walter A. Gresh, regional director of the Fish and Wildlife Service.

Chief of the Law Enforcement Division Webb Midyette presided over the various law enforcement question and answer periods. On Monday afternoon W. T. Davis, chief game management agent, Region 4, of the U. S. Fish and Wildlife Service, spoke on law enforcement and the Service, and Game Management Agent Harold M. Steele talked on "Recognizing Ducks."

Wildlife Questions and Answers

Ques.: Does anyone know how fast a box turtle grows?

Ans.: Growth from hatching to an age of five years has been observed by three biologists. One Connecticut specimen attained a carapace length of about five inches in a little less than five years. Two others grew somewhat more slowly. Studies by John T. Nichols on Long Island indicate that age can be accurately determined by growth-ring counts up through five or six years, with fair accuracy between 7 and 15 years and with little certainty beyond that age, since fewer rings were added in later years.

Ques.: Can you give me any information about the world's record white-tailed deer?

Ans.: The world's record white-tailed buck trophy, recognized by the Boone and Crockett Club, was killed by Roosevelt Luckey, in Alleghany County, New York, in 1939. He shot it at 100 yards, running, with a 12-gauge rifled slug. It weighed 194 pounds dressed which gives it a probable live weight of 247 Grancel Fitz, of New York, who helped develop the official scoring system of the Boone and Crockett Club, scored 198 3/8 for the head.

Ques.: Is it known what kind of a dog it was which saved the life of St. Patrick?

Ans.: The Irish Water Spaniel is said to have saved St. Patrick's life by diving and retrieving the saint's staff when he was pursued by the pagans and snakes of Ireland. In olden days the dog was commonly known as the Shannon or Rat Tail Spaniel in allusion to a distinguishing characteristic. Justin McCarthy, a sportsman of Dublin, Ireland, was the earliest known breeder and exhibitor of Irish Water Spaniels, during the first half of the 19th century. The famous "Boatswain," born in 1834, was one of McCarthy's dogs.

Ques.: What do chipmunks like to eat?

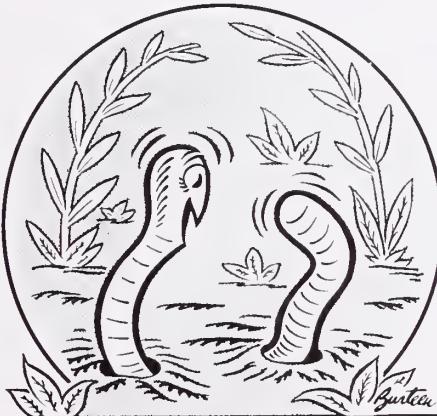
Ans.: The food of chipmunks consists mostly of seed and grains, nuts, fruits, insects and an occasional young bird and it stores large quantities for winter use.

Ques.: Can you give me any information about raising crickets for bait?

Ans.: The Alabama Polytechnic Institute, Auburn, Alabama, has published a leaflet by H. S. Swingle, "Raising Crickets for Bait," which you might be able to secure.

Ques.: What is a rain crow?

Ans.: The cuckoo has been nicknamed "rain crow" because he seems to become especially vocal before a rain.



"Is that you, Morley? Oh no . . . it's only me again!"

Ques.: What in the world is a "refrigerator cat?"

Ans.: "Refrigerator cats" are cats which have adapted themselves to very low temperatures and are used to control rats, likewise adapted to cold, which live in large commercial refrigerators. This chilly breed of cats can stand temperatures as low as six degrees Fahrenheit.

Ques.: Can fish hear?

Ans.: Fish vary greatly in their ability to hear. Von Frisch discovered by experiment that minnows and catfish hear out-of-water noises better than humans, while pike, perch and trout have poor hearing.

Ques.: Is it true that cedar waxwings can get intoxicated by eating over ripe fruit?

Note: Virginia Wildlife welcomes questions from readers for this page and answers as many as space allows each month. So, please send in the questions you would like to have answered.

Ans.: According to the Natural History of the Birds of Eastern and Central North America, by Edward Howe Forbush and John Bidwell May, cedar waxwings can get intoxicated by eating the fermented juices such as chokecherries and describes such an instance: "Their actions were very comical . . . One fellow bobbed up and down even after we had him secured under my hat . . . Some tumbled to the ground where with outspread wings they attempted to run away; still others tottered on the branches with wings continually flapping as if for balance."

Ques.: During the hunting season, will it be legal for me to kill deer on my own property without a big game stamp?

Ans.: Yes it will be lawful if you reside on that property. You do not need the stamp unless you hunt off the property where you are a bona fide resident.

Ques.: I have noted in the fishing laws that it is unlawful to use air propelled motors on Back Bay. Will you please tell me if this law also pertains to the new "Hydrojet" type of propulsion and why this law was passed?

Ans.: Any type of propulsion, other than by gasoline or electric motor, is unlawful on Back Bay on account of congested conditions which make the fast air-propelled craft a nuisance and because the noise disturbs wildlife, especially migratory waterfowl.

Ques.: What is a "stone marten?"

Ans.: "Stone marten" is simply a furrier's term for the marten, a small weasel-like animal, with prominent ears, short legs, fairly long and bushy tail, and a short, very soft coat of fur. It is smaller than the otter and the fisher. It used to be distributed over much of Eastern North America, from Quebec and Hudson Bay south to Minnesota, Ohio and Pennsylvania, but now occurs only in the wildest, most heavily forested parts of that region. It is largely arboreal and lives in deep spruce and pine forests.

Ques.: What kind of a bird is meant by a "hill partridge?"

Ans.: "Hill partridge" is a nickname for the woodcock, which has quite a number of other aliases, including "little whistler," "bogsucker," "timber doo-dle" and "wood snipe."

THE RACCOON

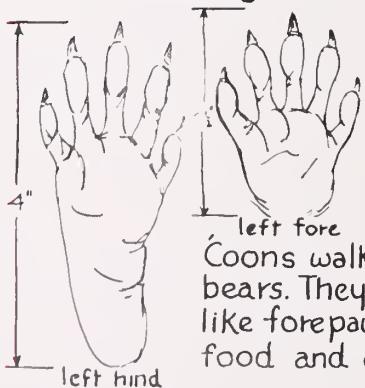
QUARRY OF THE TRADITIONAL COONHUNT. OBSERVATION OF GOOD CONSERVATION PRACTICES CAN PRESERVE ITS PRESENT NUMBERS IN VIRGINIA.



Coons will eat anything from acorns to opossums. Favorite items are crayfish and frogs which they locate by feel with their forepaws in shallow water.



Raccoons are often still traveling in family groups during the hunting season. Smart hunters take one and leave the rest for breeding and future chases. Never cut a den tree!



Look out, hound,
you're going to
get hurt!

Coons walk flat-footed like bears. They use their hand-like forepaws to grasp limbs, food and coonhounds.



To many the world's sweetest music is a coonhound baying "treed"!